IN THE CLAIMS:

1. (Currently amended) A ~~bone-analogous coating for~~ coated metallic implant ~~materials~~ comprising a metallic implant having an outer layer, wherein the outer layer comprises a bone analogous coating comprising a collagen matrix mineralized with a calcium phosphate phase ~~wherein the coating is obtained by precipitating calcium phosphate from a solution in the presence of collagen~~.

2. (Currently amended) A ~~coating~~ coated metallic implant according to Claim 1, wherein the collagen matrix contains more then one layer.

3. (Currently amended) A ~~coating~~ coated metallic implant according to Claim 1, wherein the calcium phosphate phase of the matrix contains amorphous calcium phosphate ($Ca_9(PO_4)_6*nH_2O$), hydroxyapatite ($Ca_{10}(PO_4)_6(OH)_2$), octacalcium phosphate ($Ca_8H_2(PO_4)_6*5H_2O$) , brushite ($CaHPO_4*2H_2O$) or mixtures thereof.

4. (Currently amended) A ~~coating~~ coated metallic implant according to Claim 1, wherein the calcium phosphate phase is doped with fluoride, silver, magnesium or carbonate ions or combinations thereof.

5. (Currently amended) A ~~coating~~ coated metallic implant according to Claim 1, wherein the collagen is collagen of type I.

6. (Currently amended) A ~~coating~~ coated metallic implant according to Claim 1, wherein the collagen is a mixture of collagen of types I to III.

7. (Currently amended) A ~~coating~~ coated metallic implant according to Claim 1, wherein said coating further contains gelatin.

8. (Currently amended) A ~~coating~~ coated metallic implant according to Claim 1, further containing growth factors, peptide sequences, hormones, antibiotics or mixtures thereof.

9. (Cancelled)

10. (Currently amended) A coated metallic implant according to Claim ~~9~~1, wherein the metallic implant is made of titanium or titanium alloy.

11. (Currently amended) A coated metallic implant according to claim 1, wherein said coated metallic implant is prepared by the process comprising:

1) coating a metallic implant material by immersion in a collagen solution at a pH of less than 8 and a temperature 4 - 40°C, and

2) coating said metallic implant material with a calcium phosphate phase (CPP) in an electrochemically assisted process by means of galvanostatic polarization in an electrolyte solution comprising calcium ions and phosphate ions,

wherein process steps a) and b) are performed simultaneously or sequentially.

12. (Withdrawn) A coated metallic implant according to Claim 11, wherein an additional process step b) is placed in front of process step a).

13. (Withdrawn) A coated metallic implant according to Claim 11, wherein the process steps a) and b) proceed alternately a number of times.

14. (Withdrawn) A coated metallic implant according to Claim 11, wherein the process steps a) and b) are combined into one step, the metallic implant material to be coated being

electrochemically polarized cathodically in a collagen solution comprising calcium ions and phosphate ions.

15. (Withdrawn) A coated metallic implant according to Claim 11, wherein a cathodic current flow of -0.2 to -50 mA/cm^2 flows for 25 to 40 minutes during the galvanostatic polarization in process step b).

16. (Withdrawn) A coated metallic implant according to Claims 11, wherein the mineralised collagen matrix is layered.

17. (Withdrawn) A coated metallic implant according to Claims 11, wherein the coating further comprises gelatin.

18. (Withdrawn) A coated metallic implant according to Claim 11, wherein a cathodic current flow of -0.5 to -30 mA/cm^2 flows for 30 to 40 minutes during the galvanostatic polarization in process step b).

19. (Withdrawn) A coated metallic implant according to Claim 11, wherein a cathodic current flow of -1 to -10 mA/cm^2 flows during the galvanostatic polarization in process step b).

20. (Cancelled)

21. (Currently amended) A coated metallic implant according to Claim 1, ~~comprising a metallic implant having an outer layer~~, wherein the outer layer is 0.04-150 nm thick ~~and comprises a coating according to Claim 1.~~

22. (Cancelled)

23. (Currently amended) A coated metallic implant according to Claim 2 ~~22~~, wherein the metallic implant is made of titanium or titanium alloy.

24. (Currently amended) A coated metallic implant according to Claim 1 ~~2~~, ~~comprising a metallic implant having an outer layer,~~ wherein the outer layer is 0.04-150 nm thick and the calcium phosphate phase contains crystals from 300-500 nm in length and from 50-60 nm in diameter.

25. (previously presented) A coated metallic implant according to Claim 24, wherein the metallic implant is made of titanium or titanium alloy.

26. (Currently amended) A coated ~~bone-analogous coating for~~ metallic implant ~~materials,~~ comprising a metallic implant and a coating made of a collagen matrix mineralized with a calcium phosphate phase

wherein the calcium phosphate phase is doped with fluoride, silver, magnesium or carbonate ions or combinations thereof and

the collagen is a mixture of collagen of types I to III.

27. (New) A coated metallic implant according to Claim 1, wherein the coating is obtained by precipitating calcium phosphate from a solution in the presence of collagen.